Notebook, N-03-06-19

The first entry in this notebook is dated June 19, 1903, but the correct year is probably 1905 since related entries are dated June and July 1905. There is also a marginal notation dated January 1906. Most entries are by Edison. The book contains notes and drawings regarding storage battery experiments, along with a one-page entry pertaining to ore milling. The beginning of the book contains cell tests, numbered from 646 through 766, using acidic, rather than alkaline, electrolytic solutions. At the end of the book is a series of tube tests, numbered from 1 through 89, dealing with the packing and arrangement of nickel flake in the cylindrical tubes of the storage battery. These tests are continued in a set of thirty-six numbered notebooks designated as "Mix Books" or "Tube Books" (see Notebooks by Edison and Other Experimenters, Group 4: Tube Books, Nos. 1-36). The front cover is labeled "Storage Battery Important Data." The pages are unnumbered. Approximately 180 pages have been used.

6¼ AW 92
6¼ BW 102

8 20 am –
646 – after pulling in water
Dark Colloid floated out in large
quantity in 10 minutes after
putting in water.
after 4th water so much colloid
put in KOH, at 12 noon

June 19 1903 SB

Made some glacial Phos acid – then
neutralized it with KOH, 33% till yellow.
Then put ~~[illegible]~~ 10 grams glacial in each
cell + poured it full of the KPhos solution
after dissolving the acid, found that
the solution was still alkaline! – they
had been on warm plate for ½ hour
before I treated them with Litmus
Can it be that warmth changes it
to ortho – I now put in 5 grams
more glacial in each cell making
15 grams put in – What is wanted
is that the solution should be
decidedly acid –

Then in each bottle I will put ~~[illegible]~~
bad Cell, nickels,

646 = acid solution Metaphos K –
2 Ni to work Dry
2 " Ta go in grids wet
to be washed 4 times water & go into
KOH 21% hot then water
Back all night – test sol

647 AD 387-390-381-380 650 AW 0-110 649 AW 1148 1177
646 " 267 293-297 647 " 123-165 648 " 983 1050
649 BW 1103-1140
647 BD 310-327-309-321 650 BW 150 648 " 1010-1100
646 " 327-350-322 647 " 177 649 CW 1127-1133
646 " 105 648 CW 1200 1260

The solution cleaned all pockets 646-7-650 651

The solution used in 646-647-8-9 + 650 651 is very strong and fairly new but not enough to entirely or literally turn the blue litmus perceptibly red but nearly so - it was about one week in the morning - There is a very large amount of nickel dissolved out & if from they are damaged - probably 6 hours or Even less will suffice - & changed water - but it does not come out as rapid on this change after 3rd change no additional comes out but only green solution Evidently additional was only in edge of Gauze -

Had 649 in heater 2½ hours & good bad look at off -

647 - 2 ni to be tested Dry
2 " " " wet,
The nickels to go right in 21% KOH. the moment they are taken out of the Phos Solution -
to soak all night in Phos Sol
test sol -

648 3 old trons to be worked in regard to KOH 21% as 646 in KOH at 7 pm -

649 3 old trons to be worked as regards KOH 21% as 647

650 - 4 nickels to soak off night then taken out & dried on heater & then put in 21% KOH hot
2 to be rinn dry & wet

654 AB -	153 - 177	180			654 AW -	92 - 98	
653 "	183	230	217		653 "	0	110
652 "	355	380	367	365			
650 "	288	327	307		652 "	0	87
654 BD	0	193		187	654 BW	87 -	123
653 "	260	273		267	653 "	157	173
652 "	317	324	327	324			
650 "	375	403	389	394	652 "	0	168
					650 "		118
			403		647 "		227
			397		646		139

647 & 652 [illegible] were taken [illegible] out solution [illegible]

100 cc of the Original mixed Solution had one gram of dry precip by KOH, not washed perfect. Other were 4 pockets, this would give 250 milg extracted from fresh pocket - 7 chunk from of the pp as mend sto - pbly. 50 mdgrms -

In the non 100 cc sol had 1500 of ferric - other stuff - coloch for 4 cups gross. 450 milg per cup -

650D - 405
647A 383
652A 405-404

Hold this -

651 - 4 nickels all night - ~~dry dried out on heater, then used water soak for 1 hour~~ - then KOH, 21%. 2 dry 2 wet

652 Having put all the solutions ~~both~~ 646 - 647 - 650 + 651 together - now put 4 nickels in for a 6 hour soak hot 2 dry 2 wet Put in H_2O afterwards KOH, - in KOH at 7 pm -

653 - Dup of 652 but only 3 hours soak hot - ~~put in H_2O about 3 seconds 7 chunk~~ 2 dry 2 wet - afterwards KOH, in KOH 7 pm -

654 - 4 ni dried out on heater, then immersed in the solution used in 652 + soaked 20 minutes, taken out dipped in water for 1 second then dried on heater then put in KOH for hour or so + washed with water by soaking - 2 dry 2 wet

658 W 432 - 460
657 W 425 457
656 W 463 SC
655 W 433 457

note

652 & 647 & 650 Great ~~[illegible]~~ on previous pages -

652 6 hours Soak Reg wash
647 soak all night go right in KOH
650 " " Dried with Soln go right in KOH -
The wood go to show 6 @ 7 hours
soak in ortho phosphoric acid Soln
putting right in KOH Great - next
that will tide the thing -

655 = are 4 Reg B.Z new plates
soaked in same solution as 652
soak 6 hours - 1 goes right
in 21% 1 Dried with solution
in + then KOH, 1 soaked water
+ then KOH, 1 soaked water
not to go in KOH,
655 Right in KOH 21% - 5 pm -

656 Dried with Solution in
~~Not soaked KOH~~ then Soaked KOH -
after soaking K_2O 2 hours - 4 clamp in
in KOH at 7 pm -

657 Soaked in water then KOH

658 Soaked in H_2O not to go in KOH,

659 aw-sc

Make a standard solution of Emmr & Amend Glacial Phos acid or neutralize by 33% KOH, use 2 lbs of stick to 1000 CC water. Half of the solution which is the half now used is made neutral with a tendency towards being very slightly alkaline.
I use 6 16 oz bottles & put the solution in each & put in 4 nickels in each cell — 2 are to be run dry & 2 wet in all the cells —

No 659 go to soak in neutral standard solution 2 hours & are then removed & put in water, after proper washing in water they are to be put in 21% KOH, hot for several hours & then washed in water & cut up to test, 2 to run dry 2 wet.

660 Dup of 659 but soak 3 hours.

664 AD	216	320	+	664 BD	205	190	665 AW	38	
663 "	300	287		663 "	312	300	664 "	79	
661 "	330	358	355	662 "	187	184	663 "	122	
660 "	50	323	339	660 "	250	220	662 "	92	
659 "	50	205		659 "	102		661 "	127	
							660 "	108	

662 AD 263 -

661 Dup of 659 Gut soak 4 hours

662 Dup of 659 Gut soak 5 ½ hours

663 Dup of 659 Gut soak 6 ½ hours

664 Dup of 659 Gut soak 7 hours

The solutions in all the above from 659 to 664 up to 62 dawn

665A 225
66

The preserved solutions of 665 to 670 are greener than those of 659 to 664 — but they are only a very light tint showing very little. The 665 is faint

The other set 659 group 659 + 660 are white + 661 can just see tint

In the morning 7 hours after last one put in water + 9 formed in both groups that the water was turbid stronger than the original solutions,

The pockets in both groups are fairly clean except the short time soaks have stick unopened —

Solutions are to acidity are stick the same after 13 hours

after changed water at 830 am 9 hours after 20 minutes after 2nd change of water dark yellow floating out all cells, both groups 659 to 670 —

The other 1/2 of the standard solution is quite acid but not far from neutrality — it colors blue litmus darkish red, but yet decided red — This lot is to be dups of 659 all except the solution which is acid

665 — to be soaked in standard acid solution as above 2 hours it is then to be removed + put in water after proper washing they are to be put in 21% KOH, for several hours + then washed in water + set up for test. 2 to be run dry 2 wet. This soaks for 2 hours

666 Dup of 665 soak 3 hours

after 2nd change water + wash 3/4 hours so much dark color comes out that I changed both groups from 10% Clorox to 21% KOH put in at 9.20 am -

670AD	1st		670BD	2nd		670AW		670CW	
669	310	324	669 "	109	133	669 "	113	669 "	98
668 "	300	313	668 "	300	299	668 "	100	667 "	67
667 "	297	309	667	283	314	667 "	127	666 "	153
666 "	278	321	665	30	176	666 "	127	663 "	77
6								662 "	65
								661 "	103
								660 "	140
								659 "	33

670CD			
67	326	322	337
66	325	349	475 433.
67	293		
66	302		

671 group in Salubrin 9.05 am

670AD 2nd run	274	670BD 2nd	219
669 "	333	669 "	127
668 "	372	668	316
667 "	300	667	315
666 "	300	665	0
664	220	664	200
663 "	271	663	327
661 "	350	662	184
660 "	317	660	235
659	225	659	122
665	140		
662	278		

acc - 2nd Reading

667 Dup of 665 soak 4 hours

668 Dup of 665 soak 5 hours

669 " soak 6 hours

670 " soak 7 hours

671 Now take the solutions saved from 659 to 664 and put in 4 m. of each + put them on heater taking off 2 3 4 5 6 7 hours soak + then putting this right in 21% for 6 hours soak hot + change KOH Salubrin twice, then in water

671 - This soaks 2 hours + goes right into KOH after rinsing with water -

676BD 267 - 225
675 " 182
673 " 165
672 " 295 - 255
671 " 183

677 AD 205
676 AD 200
675 " 287 - 285
674 263 - 250
673 213 - 245
672 187
671 A 157

676 aw 119
675 " 118
674 " 67
673 - 50
672 100
671 125

677 group ow at 905 am -
677 a - 295

672 Dup of 671 soak 3 hours ✓

673 " " 4 " ✓

674 " " 5 " "

675 " " 6 " ✓

676 " " 7 hours

677 = Solution in which 664 to 670 was soaked - treated same as 671 -
677 - Soaked 2 hours

682 B 0 - -262
681 B - 50
680 B - 160
679 " 290 280
678 320 340

682 A 367 - 400 - 413 - 404 - 400 - 403 - 419 - 385
681 " 233
680 " 263
679 " 200
678 285 - 238
677

682 aw 88
679 " 112
678 123
677 145
681 92

682 Bw 100
681 " 130
678 " 105
676 " 172
675 " 73
674 " 73
673 " 162
683 + 684 - Soluble too slowly even when
warm on hot plate. Crystalizes out,
about 1/2 - Gallon -

683 - 2nd

678 Dup 677 - soak 3 hours ✓

679 " " 4 ✓

680 " " 5 ✓

681 " " 6 ✓

682 " " 7 hours

683 = arsenic acid boiling conc
then 33% KOH added till just a little
acid, dark reddish on blue Litmus —
Put 4 nickels in soak for 7 hours
then H_2O + KOH 21% + H_2O again —
2 day 2 wet

684 Same as 683 but after soaking 7 hours
Rinse in water + put in KOH 21% hot
6 hours then wash —

There may be some mistake in [illegible]
Marking bottle - strength Arsenic acid
to 33% Very syrupy

686-AB- 192
685 " 132
684 " 197
683 185

686 RD 223
685 160
684 195
~~683~~
686 Am- 150
685 " 88
684 106
683 109
682 153
685 57
684 107
683 150

685 - Arsenite Potash - used arsenious acid only put in 33% but accident got it acid dident have enough arsenious - its decided by alkaline by red litmus -
4 nickels break 7 hours
then Water then KOH 21%
then water -
2 wat 2 dry -

686 - 4 ni put in the last of aised metaphosphate K sol which 2 or 3 sets of ni had been soaked in & which is very alkaline acid - & into which 1/2 of green ni been in hot for two hours & cold all night - fully fully saturated with ni - left the nickels in 15 min rinsed & put in KOH, - then water
2 wat 2 dry

687 BD 117 687 AD 161-212 687 W 112
687 AW 122 -

Hypophosphite K started alkaline - after being on heater 1 3/4 hours solution nearly cold at 2 hours started gassing like boiling & solution turned gray - it gases vigorously 688 was boiled off about 15 minutes after started gassing being on 2 hours - The solution at 1320 was off to Acid but not strongly acid. in 688 The solution was not boiled but it has no evidence of Nickel dissolved The 3rd weak water is acid - 0884

687 Arsenious acid saturated in Excess in KOH 21% Even with Excess acid it still strongly alkaline - to this diluted to 1/2 with water - still Excess acid & alkaline - I now dilute it so about 3/4 H_2O - Soak 7 hours - then wash then KOH & H_2O

688 - In 2 hours hot in Hypophosphite Soda - 1 lb to 500 cc then in H_2O then KOH 21% then H_2O

689 Dup 688 soak 3 hours

690 Dup 688 soak 4 "

its growing yet shows no tint of nickel.
The gray color is due to very finely
divided graphite thrown out into pp
probably by internal gassing
In the 3 hours one KOH precips
some nickel of yellow color due
probably to Fe mixing with it,
at 4 o'clock the solution
in remaining bottle quite acid —
blue let drop pink red.
Probably some of the gray color
may be due to ill divided or
partly reduced Ni in fine state
but mostly its due to graphite —
Took all the solution added Nitric
then pp by KOH, boiled, green pp not
much then dis in HNO_3 there was
sudden patch of red fumes then
violently little fizzed. Solution clear
no sign nickel but good pp in the NH4Cl
probably from only a smalling size
because nearly all the pp in NH4Cl after
filtering shows white.
No Ni in 690 — more Fe than in 689 —
There is a very faint tint showing Ni
pockets are clean a little but not dull and graph
even in 692 =

693 AW 342
692 393
691 343
690 353
689 364
688 178

See 4 pages above

691 Dup of 688 soak 5 hours

692 Dup of 688 soak 6 hours

693 Dup of 688 soak 7 hours

693 AB	322	693 AD	302	693 BW	295
692 "	419	692 "	389	692	288
691	410	691	341	691	296
690	348	690	287	690	353
689	367	689	327	689	315
688	325	688	50	688	172
		Cooled		693	

694 — 126 Hypophosphite Sodium
500 cc H_2O —
Soak in Cooled 2 hours then
wash then KOH half 6 or 8
hours then wash

695 Dup of 694 — soak 3 hours

696 " " " 4 "

699 - had considerable Iron in
The Solution is clear yellow —
No profite as in hot Hypophosphite
phly because no internal gassing
Note = If internal gassing is
required Hypophosphite Na is the
best thing - when hot —
Pockets of Cold group 694 not cleaned

699 AD	99		699 AB	157
698 "	167		698 "	155
697 "	193		697	156
696	160		696	152
695	233	28	695	133
694	160		694	172
~~[illegible]~~				

700 701 702 - had white film on top of
Cups had a dingy green precipitate on all
now 2 days - the green ~~[illegible]~~ is now
perhaps - due to the presence of Nickel -
Eventually certainly time as oxide will combine
to form chromate without the nickel —
probably the Nickel is combined but most
of KOH hot will decomp it - then will cause
decomp as small particles to appear & probably
make new & better film on alloy —
all were soaked 16 hours before putting on
lectron —

702 BD	200	192	
701	167	193	
700	90	166	
702 AD	132	160	
701 "	153	178	
700 "	136	173	

697 Dup of 694 soak Cold 5 hours

698 " " 6 "

699 " " 7 "

700 - 500 cc water 12 oz Arsenite
Soda - filtered & partly neutralized by
KOH, it is darkred acid on blue litmus.

700 - soaked all night Cold - then
H_2O + KOH Hot + H_2O

701 soaked all night hot

702 " not so hot

703 Iron W 1170 v.

704 Iron BD 1017
704 " W 933 v
703 " BD 890
704 " AD 1000
703 " AD 933
708 W&A. 1200 v.
706 W A 1100 v
705 Cups very clean.
708 W-B 1170
706 W B 917
708 A. 1223

Hypophosphite Na
apparently dirt
first wave —

707 B 151
707 W 115

707 & 708 Still after 4 hours dont
boil or only goes a little —
Cups nearly cleaned

703 - Hypophosphite Na - 1 lb 500cc Grain
used once (Cold) - 3 from 6 hours

704 same as 703 but 3 hours in 3 hours
on 8 am.

705 1/2 strength of above (to 703 Hypo
in 6 hours. 3 nickels.

706 1/2 strength of Hypo 2 hours in 6 hours

707 - 1/2 strength of Hypophos as above
having been used once - then added
abt 1/3 its bulk of 21% KOH making
it decidedly alkaline -
3 nickels. 6 hours - on at 830 am -

709 B.D.	388	413	708A from wet	1133 - 1240 -	
704 "	1067		706A "	1053 - 1120	
703 "	1000		708B wet	1103 - 1200 -	
709 AD	268	278	706 "	893. - 933	
705 "	345	348			
704 "	1067				
703 "	953				

408-440-
288

327

709 - Bob's body on broken 1/2 the
Salt Came out filled with H_2O -
709 at 3 hours after put on was
acid - cup not cleaned.

Notice when I put KOH it quite a lot
which precip thrown out -
320 - no graphite has come out, only bob
a little - still very alkaline -

711 = Lots nickel Came out
This pbly be Ng -

708 - Drop of 707 but has 2 9mm in
off at 3.48, put

709 - 116 500 CC water - full
Strength. Neutralized carefully
Alkaline by 93 1/2% 3 Nickels -
off 350

710 75 cc of the Standard Hypophos
phite Sol 116 500 cc & 25 cc of
33% making it very alkaline.
Comes off 640 ppm -

711 = So called ~~two~~ 1/2 hour alkaline d
Na_2CO_3 dried & then quick dip twice
& dried. put in 5 @ 10% HCl - black
Came out, attacked Ni ~~but~~ as considerable
in solution but this may be due to
gas given off of solid Ni at boiling black
Came out only at end - pbly off -
only in acid 5 minutes, washed
well out in water - Run wet
which seems to Coming out position 50%
KOH 1 hour. Run dry -

693B							
92	322	323	324				
91	419	412	390				
90	410	420	425	429	438	442	
89	348	350	346	340	342	342	
88	367	392	407	407	400	422	
	323	342	325	315	322	318	
	2191	2239	2216				

693A							
92	302	269					
91	389	413	407	405	412	416	
90	341	343	330	322	329	326	
89	289	295	288				
88	327	354	359	358	367	373	
	50	50					

693B Wet							
92	295	291	293	291	292	297	
91	288	287	287	293	297	290	
90	296	291	293	290	292	295	
89	353	359	353	342	343	352	
88	315	302	300	307	320	311	
	172	207	200	200	220	220	
	1717	1792	1696	1673	1724	1725	

693A Wet							
92	342	345	345	344	342	343	
91	393	365	352	348	344	343	
90	393	325	296	293	290	297	
89	355	323	323	313	320	312	
88	364	337	337	327	324	324	
	175	207	217	200	219	227	
	1975	1837	1870	1821	1843	1850	

713 Dry 278 - 300 - 293
712 " 245 - 258 co
711 " 233 242 co
710 " 132 153 co
707 151 172 Co
710 W 100 - 132 Co
709 W 257 - 257 Co
707 W 115 - 141 Co
705 W 323 - 347 - 315
704 W 1017 -
703 W 1200

705 W 6th run 322

714 Dearly any Ni - solution some
reported that may have worked out
of bottle -

712 = Pocket soaked 1/2 hour Conc Na_2CO_3
Dried + put in weak HCl 1% 1 quart
good Conc. sparkle but no black
Conc at, in 1/2 hour a fine red
little ~~blue~~ green but put it in 5% KOH
hot, for a while,

713 = Pocket soaked 1/2 hour Conc Na_2CO_3
then put - strong glacial hot -
lots gas formed for several minutes
some black - when hot ~~that~~
took out + put in 5% KOH + was
pretty soaking - glacial 10 minutes
pretty 15 -

714 - 75 cc K Metaphosphate, 25 cc Ferrocy K
Saturated, 6 nickel from cell quiz 39 @ 40
dump on long charge - soak ~~48 hours~~, hot
then KOH, then H_2O - The metal K is acid
Colors litmus reddish (stain) -
3 dry 3 wet, ~~[illegible]~~

Very slight yellow tint - 715

719 D	115	146		718 wet		209
718 "	163	312-241-254				165
717 "	165	320	256-262-717	"		113
716 "	220	288	312-307-Co			106
715 "	117	152	255 Co	716 "		133
714 "	87	114	156 Co			126
						93
						135
						27
						229
						299
						197

Co

Quite large deposit bottom bottle, sol 716 little yellow green tint

715 wet	133	
	150	Co
	103	
	127	
714 wet	83	
	92	
	67	Co
	75	
	53	

717: Big pp by NH4 - ~~[illegible]~~
~~[illegible]~~ filtered: no green color
dissolved in HCl + pp by KOH,
then shows quite an amount of
precipitate probably nickel -
Cannot dissolve clearly - goes thru big -
Solution originally very green -
718 - Sol clear white flocculent ppt

719 Sol clear "

715 - 75 cc Hypophosphite Soda -
25 cc Saturated Ferrocyk to soak
24 hours - 6 nickels, ~~same~~ [illegible] as 714 -
Then KOH, then water -
The Hypophos is not acid - to 62 - 48 hours
hot

716 - 75 cc Hypophosphite Soda added
Enough 10% Sol Hypophosphorous acid
to redden Litmus decided, added
25 cc Saturated Ferrocyk -
to 62 - 48 hours hot Then KOH, then H_2O
6 ni 3 wet 3 dry

717 - 75 cc Hypophos Soda acid
25 cc Arsenite Soda - 6 ni 3 wet 3 Dry
to soak 48 hours then KOH, then H_2O -

718 6 ni H_2O
50 cc Arsenite Na soak 48 hours
4 ni

719 25 cc Arsenite Na - 75 cc water
4 ni soak 48 hours

720 Sol clear some white flocculent,

721 to 724 in solution 2 or 3 hours

Thick deposit of green stuff not decomposed
Cloudy with pungent CN smell strong
pkt feels hard —

Large quantity stuff comes out
some black C black — Solution
green

Only shade lint it goes out gas
for 2 hours or more finally all gone
pkt clean

724 If dilute acid dissolves the acid
hardly any gas —

720, 75 Hypophosphite Na 25 cc arsenite
Soda Soak 48 hours, then KOH,
then H_2O —

721 — Pocket Green Soaked seven hours
hot 20 hours cold Conc Na_2CO_3
then put in Bisulfate Na to which is
added Ferracyk — 1 Dry

722 — same as 721 Put in Bi Sulph Na and
good deal gas — Solution Colored Black
pkt comes out gummy a soft end, 1 Dry

723 " Put in 3 inch stick Sol of
glacial acid — some gas comes out, 1 Dry

724 — Same as 721 in arsenious acid
(hardly any dissolved) no gas — 1 Dry

730 D	283	sc. -288	718 wet	185-192		
729 "	358	367-390-378		62		
728 "	298	342 380-375	717 wet	77	716 wet	188-214
727	217			100		258-233-255
726	241	257-280 cc		87		246-328-318
725	312	303-320-299 cc		62		205-255
724	140	169-		98		163-192
723	Split					
721	117				714 wet	53
720	223	284 Sig	715 wet	78		82
				183		35
			327	80		27
				83		33

Tested solutions from 4 cells having Na Hypophosphite in several hours shut — Considerable gas now but probably not 5 milligms of green nickel came out of the cathode 12 packets that ppbly came out mechanically by growing. There is considerable nickel present

730 gases strong as well as 729-8-7-6-725
No shock comes out, solutions at 240 show no tint of nickel. they are now acid

725 - Standard Hypophosphite Na — neutral
1 lb 500 cc water —
½ strength 4 nickels — 6 hours

726 Dup of 725 ¼ strength
4 ni 6

727 Dup of 725 ¼ strength
10 hours

728 - Dup of 725 ⅛ strength
10 hours

729 Dup of 725 ⅛ strength
20 hours —

730 Dup of 725 1/16 strength
20 Hours —

June 29 1905

The Idea of 731 to 739 is to
Cause the acid to combine
with the granular the resultant
insoluable, then wash out by
long water soak the sal that
treat with KOH hot 24 hours
then water to wash the mix
to increase the Control of
porosity

732 - green — 733 green -
732 all naked iron grey
733 "
736 "

734 = only little dis - poured out clean
and washed that —

735 = as black came out yellow
put in H2O put it right in KOH
added H_2O_2
736 green -

731 - Reg cup Reg mix 3:2
Put in Stainless Ferrocy hot, 8
To 6 kept 24 hours, then water
then KOH. Calliper new 91 100-102
soaked 14 hours hot,

732 Drop of 731 but 5% Solution
of phosphorous acid -
Calliper new 92 100-102 14 hours soak
Had to water 1/2 hour boil off - now cold,

733 Drop of 731 but 20% Solution
glacial phos acid -
Calliper 93 103-102 14 hours soaked
1/2 hour hot now cold -

734 Drop of 731 but 1/2" Picric acid
Cal 90 — 98-94 soaked 14 hrs Hot

735 Drop of 731 but 1/2" Sulphide K.
Calliper 96 104-106 soak 14 hours hot

736 Drop of 731 but 1/2" arsenic acid
Calliper 91 98-101
1/2 hour hot now cold soak 14 hrs

740 wet 140 | 243 | 730 A wet 213-260 | 727 wet 50 - 258 | 320
739 " 483 | 491 | 730 B wet 158-206 | " 276 - 290 | 307
738 497 | 500 | 730 C " 217-273 | " 328 - 330 | 340
737 440 | 459 | 726 wet 317 - 307 - 320
736 255 | 250 | " 315 - 327 | 331
735 388 | 405 | 729 wet 250-297 | 300 | 208 - 200
734 407 | 413 | " " 317-342 | 350
733 372 | 350 | 725 wet 242 - 228 | 280
732 345 | 50 | 728 " 253-290 | 300-288 | 300 | 283 - 287 | 297
731 - 517 | 507 | " " 195 - 207 | 338 | 328 | 339
" " 197-207 | 720 wet 263 - 317 - 291 | 357
233 - 297 - 305 | 332
719 wet 122-157
" 70 - 123
" 50 - 77

739 - 1½ hour hot, bal cold

739 is not green —

740 - Sol very black —
put water in + then H_2O_2 to oxidize
the sulfide of Ni
after pull — $NaOH$ gets black again
added H_2O_2 when it cleared

740 | 3rd 332

V 737 Dup of 731 but 1/4" arsenious acid
Cal per 88 - 95 = 97 soak 14 hrs Hot

V 738 Dup of 731 but ½ ferricyanide K.
Cal per 90 97 - 98 soak 14 hrs hot

V 739 Dup of 731 but ½ oxalic acid
Cal per 88 — 96 - 97 soak
1½ hours on hot - Now cold - 14 hours

740 Dup 731 but in Ammon sulfide
Cal 89 92 - 91 -
to be soaked cold — 14 hours soak Hot

after 14 hours - 741 not quite no tint,
742 to 45 all greening no tint
746 - green - 747 clear
741 nosedgment 742 some blackened - 743 1/2 blackened
744 - 1/16 sed 745 - scarcely any sed - that dirty white -

Phenomena - 741 cups not cleaned
but 742 - 3 - 4 & 745 cups cleaned but
not to a very bright clean dull uniform
Clean - 745 is as good as the others -

741 to 747 was in KOH. only leaves
from Sulphide Particle washing Aug 9.

746 - turns white + gives precip when stirred
up - possibly Oxalic made most
of oxalate K formed which is not very sol

747 Don't give the precip -

741 = Standard Solution of Hypophosphite
of Potassium. 1 lb to 500 cc
741 is full strength. 3 ml all wet.
16 hours

742 Dup of 741 Half strength 3 ml

743 " Quarter strength 3 ml

744 " One eighth strength 3 ml

745 " One sixteenth strength 3 ml

all 15 hours on at 5 PM afternoon Aug 9th — 1 hr KOH 16 hours

746 - 1/2 strength Hypophosphite Potassium
by filling bottle 1/2 full of full strength
then adding strong Sol. Oxalic acid till
3/4 full + 1 bal water - 3 ml 16 hours

747 1/4 strength or bottle quarter full
of full strength Hypophosphite K, then
added strong Oxalic till 1/2 full
balance H_2O - soak 16 hours

Notice that Na Hypophosphite Cells
gas after on 1/2 hour but
* Potassium Hypophosphite dont gas
often being on one hour & 1/2 —
There must be a difference between
the two —

* K Hypophos after 5 hours gas all night but not
so strong as Na Hypo after 1/2 hour —

after 24 hours 748 49 + 750 gassing a little
748 has consistently black sediment
749 a little white sediment
750 no sediment — no test in either —

Note = 748 49 - 50 - white flocculent in bottom no
graphite - 10 Cells 751 52 + 53 has graphite
in bottom —

I may have got numbers
wrong on 751 2 + 3

751 to 753 after 24 hours no gas come off
Sol not tinted 751 has little sediment — bottom
752 - still has 753 none —

K

748 = 1/4 strength of 1 lb 500 cc Hypophosphite Potash
to be soaked from 10 am Saturday until
the 5th of july — 4 days — then KOH 16 hour
off at 9 am July 5

749 = 1/8 strength Dup 748
off 9 am July 5

750 1/16 strength Dup of 748 —
off 9 am July 5

Na

751 1/4 strength 1 lb 500 cc Hypophosphite Na
to be soaked till 9 am 5th of july
on 1030 am —

all off Nine AM July 5th

752 1/8 strength Dup 751

753 1/16 strength Dup 751 c

754 - yellow green tint after 15 hours soak
755 very faint tint -- " -- "

757 + 758 - No tint in soak cups clean.

754 1/8 strength - Metaphos Soda slightly acid -
1 lb glacial 500 cc distill - to volume
to make 33%
to soak till July 5th 9 am - on 10 30 a.m.

755 1/4 strength Dup 754 -
754-5 - off 9 am July 5

756 - 1/4 strength Na hydrophosphate -
Soak COLD until July 5 - 9 am.
Started 12 Noon Saturday

757 - two old cups been soaking 2 days in
hot Conc Na2Co3 - dried & put in Cell
Containing 1/16 thick over bottom of
Oxalic acid - in 15 hours

758 - Dup of 757 but 1/8 inch over
bottom, of oxalic - in 15 hours

Monday
put in ~~Sunday~~ 10 am. 3rd

Put in Monday 10 am — 3rd July

759 1/4 strength of Standard Sol
(11 lb 500 cc) of Potassa Hypophosphite.
to soak 10 to 15 hours — then old
solution poured out & fresh solution
put in & soaked again 10 to 15 hrs
then H_2O & then KOH_{aq} H_2O —
put fresh Hypo in July 4th 2 pm
off July 5 — 9 am —

760 Dup of 759 but Hypophosphite
Soda instead of KPO.
Put fresh Hypo in July 4th 2 pm —
off 9 am July 5 —

760 D 248 – 233 748 wet 313 327 – 323 340
759 " 232 – 222 747 " 117 – 153
758 B Dry 113 – 127 746 " 67 – 100
756 " 235 268 – 246 745 " 183 207
755 Dry 156 – 211 744 " 280 – 295 – 297 315
754 " 173 – 210 – 743 " 257 – 252 – 257 265
753 D 327 367 – 367 – 367 742 " 320 – 333 – 322 285
752 " 284 292 – 281 741 " 52 – 86
751 " 343 358 – 355 – 760 Wet 255 – 232 –
750 " 230 267 – 268 759 183 170
749 133 756 217 – 212
748 320 – 315 – 312 757 73 – 114
758 A Dry 128 – 128 754 117 157
757 " 117 128 753 325 336 – 326 338
756 " 250 300 752 " 337 330 – 317 –
755 " 115 – 125 751 " 255 248 – 237 –
754 " 162 175 750 " 317 348 – 354
753 " 192 – 200 749 " 288 293 – 283
752 " 260 292 748 253 260 – 258 –
751 " 317 – 312 747 " 47 87
750 " 310 306 746 " 113 152
749 " 150 – 167 745 " 203 222
748 wet 278 – 254 – 239 744 " 262 – 276
759 " 260 233 – 223 743 " 262 – 258
756 " 257 – 279 – 278 741 40 77
755 " 73 – 106
754 " 95 116
753 " 278 292 – 294 – 295
752 " 343 342 – 340 – 339
751 " 312 297 – 283 – 283
750 " 217 251 – 253
749 " 313 323 – 324 – 324

For large Cells –

Use 1/2 strength Hypophosphite Na
20 hours soak – This is poby best so far but on account of small quantity per pocket perhaps best to use full strength on one & 1/2 on the other –
Sol 2 Gr HPO 1000 cc water – full strength.

761 = 1/2 strength Hypophosphite 2 Gr 1000 cc
Soda. In large beaker 10 nickels in put on iron plate direct – not on the asbestos – to get higher temperature to leave on all night
on 5 pm off 10 am next day
at 630 pm boiled over hot put on asbestos for the night
10 am morning – 10 am soaked water at night – soaking put – KOH right on iron soft then hard
762 1/4 strength – put on heater – same way & same time as 761 –
10 nickels –
On 5 pm off 10 am next day –
at 630 pm hot boiled over leaves it on iron all night
10 am morning – put water in the night
Wet had time as 761 KOH

761-CD 337
761 BD 282
762 BD 297
762 BD 220
762 AB 193
762 BW - 298
762 AW 250
762 BW 302
762 DW 261
762 CW 227
762 BW 255
762 AW 230
761 CW 250
761 AW 322
761 BW 312
761 DW 98
761 CW 305
761 BW 305
761 AW 307

1557
2269
1801

763 - 3 from 761 lot nickels dried on heater and put in frames without recorrugating or pressing

764 - The 7 nickels from 761 put in wet - that dried on heater,

765 3 nickels from 762 lot dried on heater & put in frames without Corrugating or repressing

766 - The 7 nickels from 762 lot put in wet,

761 A Dry	337	373	362
" B Dry	282	287	277
762 A Dry	193	245	250
" B Dry	220	303	325
C Dry	297	340	336
761 A Wet	307	295	278
61 B Wet	305	302	269
61 C Wet	305	313	303
761 D Wet	98	168	162
761 E Wet	312	322	310
761 F Wet	322	322	X Lost
761 G Wet	256	282	258
	271		
762 A Wet	230	273	277
762 B Wet	258	285	288
762 C Wet	227	290	300
762 D Wet	261	302	305
762 E Wet	302	315	313
762 F Wet	250	265	258
762 G Wet	298	352	350
	260		

7 | 1823 — 260

7 | 1801 — 257

350

10	528		515	552
12			726	753
13			415	445
14			375	382
15			216	218
16			345	365

Patrons on

	Hot 250	300				350				400			
25 X	753	468	532	565	596	465	502	515	530	550	417	442	450
26	796	730	755	777	785	707	712	752	758	600	630	705	706
27	582	387	385	467	440	380	352	405	415				
28	757	637	675	668	710	630	575	662	665	505	574	600	602
29	377	CO											
30	863	400	543	587	607	451	465	492	507				
31		400											
32	867	597	575	600	640	470	502	515	530	352	420	410	416
33	838	583	630	657	706	565	591	612	627	402	497	490	500
34	770	205	682	697	715	590	599	612	614	346	414	411	420
35	790	640	755	768	768	630	610	612	722	597	619	651	657
41	778	586	615	620	675	510	520	591	592	355	402	422	435
43	750	557	637	632	665	527	545	552	572	351	405	435	447
53	759	488	550	547	570	357	365	377	391	390	442	442	440
31	400												
59	537	600	585	603	635								
60	480	550	564	575									
62	778	816	755	757	530	590	622	653	387	446	467	470	
63	768	635	658	685									
64	468	527	540	572	575	434	472	515	542	410	440	442	
70	600	665	672	697									
71	466	522	530	534	562	366	316	337	410	430	466	462	
	300	500											
73	777	562	636	667	690	637	700	702	572	620	650	550	
83	800	651	732	772	810	742	812	499	555	630	697	665	
89	815	503	585	605	665	662	690	705	755	530	565	447	
	700	350											
105	765	480	500	600	635								
140	815	755	537	657	630	491	570	610	757	747	500	505	
141	917	820	637	675	700								
149	773	511	597	662	632	613							
152	710	465	552	587	612								
154	852	645	706	725	758	597	632	677	666	572	632	632	630
160	937	635	743	773	797	630	680	717	730	692	692	677	657
		350											
173	747	533	612	637	660								
188	832	680	692	666	664								
193	915	640	678	665	645								

* 150 Cold 50 Hot,

* 150 Cold 100 Hot mix
* after putting in 21% KOH
then 10% KOH + 10% K_2CO_3
precipitate? in the corner

	150H	200				250							
210	867	676	737	754	775	522	592	618	632	465	575	583	500
211	752	557	637	651	663	465	500	522	545	377	425	445	447
212	792	607	697	702	730	455	517	542	566	390	492	454	450
216	750	515	560	565	570	G							
218	853	815	695	695	873	677	727	712	715	515	665	687	687
219	835	815	442	532	821	555	625	621	631	555	577	585	560
221	500	691	692	672	662	477	537	555	575	410	447	500	477
225	792	693	790	794	785	615	575	645	717	572	625	649	637
226	765	632	697	710	730	572	590	662	670	465	607	625	620
227	680	572	623	625	642								
228	765	581	650	671	695	537	567	612	617	565	595	555	560
229	630	465	541	555	565	G							
230	727	616	677	693	707	50	575	647	672	460	577	537	550
231	560	435	467	482	467	767	785						
232	597	370	411	430	434	702	737						
233	712	545	588	595	607	410	521						
						150 Cold 250 Hot							
234	830	866	975	975	995	992	992	992	987	890	897	901	897
235	810	776	826	823	831	777	797	790	835	682	745	755	757
236	850	802	837	835	853	757	815	837	837	742	762	772	772
237	612	770	790	791	820	600	641	649	655	585	575	585	
238	712	770	780	777	795	760	776	777	772	677	690	695	
239	710	758	769	770	765	712	791	792	792	615	632	640	
						300							
240	557	662	622	625	537	562	572	616	621	490	507	500	502
241	810	697	692	700	725								
242	505	497	442	476	486								
243	800	696	722	741	764	528	583	591	606	485	452	452	461
244	867	623	710	732	761	520	565	600	605	392	427	427	437
247	252	121	122	130									
248	690	464	557	572	601	417	457	490	480	375	385	395	400
249	760	530	590	660	665								
250	848	657	767	789	921	486	537	570	573	352	385	382	390
251													
252	852	690	592	565		450	495						
254	815	550	630	643	687	442	490						
255													
257		350											
259	945	749	250	245	250	237	277						
260	647	741	747	770	435	490							
261	565	640	677	660	155	142	55						
262													
263	941	240	275	267	273	212	237						
264	805	737	767	775	770	620	706						
265	910	777	793	803	831	360	406						
266	753	360	455	497	497	227	241						
267	655	320	305	342	367	264	312						
269	891	463	479	463	489	321	375						

| | | |

* Thing w cell that had 100 Cold runs before hot test,

	Hot 400			
63	95	95	122	140
65	130	145	147	172
70	—	Hot 8e	—	—
		350	Hot	
210	316	335	381	388
211	296	298	332	337
212	318	330	372	375
218	606	695	677	676
219	446	462	516	515
221	383	446	435	432
225	500	530	568	572
226	423	451	492	506
228	400	420	457	462
230	455	481	572	523
234	833	847	850	852
235	541	581	618	635 *
236	581	618	658	668

* Sent for thermo & found it aplit open (?) Item —

	400			
83	418	440	470	490
85	370	412	425	450
89	32	30	377	385
	350			
281	580	550	597	553
287	959	950	990	947
287	785	787	783	800
288	617	687	695	703
289	552	590	596	623
314	510	563	580	577
315	430	435	457	471
316	423	481	440	487
317	281	295	277	302
318	373	372	398	415
319	377	427	430	447
322	306	363	357	376
324	344	407	372	438
325	353	411	402	441
327	181	235	228	236
328	118	151	155	167
	400			
141	366	404	415	452
155	527	555	574	602
162	537	581	617	638
237	350	482	466	480
238	541	585	615	622
239	450	512	527	532
241	357	377	400	446
244	330	352	377	387
246	212	243	255	277
305	290	312	325	330
306	33	32	33	27
306	10	8	12	6
307	16	10	12	7

** Reg map 3.2g Corrugd 250 atmos.

	500				
8/11	382	440	430	455	
	400				
15 X	372	412	417	448	
16 X	575	632	635	650	
2	447	530	530	547	
3	350	332	335	350	
3	389	430	432	454	
	250H				
272	500	535	532	560	
273	373	412	412	417	(not open)
274	408	432	422	422	
338	450	520	495	511	
339	665	732	727	50	
342	350	436	412	442	
344	447	467	455	467	
345	472	500	492	500	
346	469	495	490	490	
347	235	7	272	315	not #
348	436	470	460	477	
349	382	435	430	450	
	50H				
115 in	495	515	506	513	
" 11	484	508	506	505	
" 12	462	492	482	492	**
" 13	478	507	500	507	
" 14	425	458	452	455	

300	350	400	450
2	2		3
3	3		
4	12		
12	26		
26			
35			
85			
160			

200	250	300	350	400	450
	2	2	2 743	3	3
	4	3	3 743		
	12	4	12 743		
	26X	12	26X 743		
	35	26X			
	85	35			
	160	85			
	10	160			
	23				
	28				
	30				
	31				
	32				
	33				
	34				
	38				
	41				
	44				
	55				
	63				
	69				
	77				
	273				
	282				
	287				
	334				

	Hit 250			
32	750	765	766	770
35	802	800	793	795
41	640	797	730	748
45	692	732	737	750
55	763	787	760	789
31	[illegible]	897	895	900

	50 Hot				100					
275	835	847	843	840	781	820	836	845		
276	733	879	770	771	640	691	710	720		
277	663	673	685	680	557	605	625	601		
278	1010	1011	987	982	916	912	905	906		
279	990	990	967	958	965	970	966	967		
280	975	992	982	976	901	957	971	975		
281	762	873	886	912						
282	910	977	978	972						
283	617	725	720	750						
284	633	658	665	660	632	660	675	676		
285	730	736	728	725	682	723	736	741		
286	717	728	722	722	645	681	700	700		
287	925	987	983	976						
288	860	967	972	972						
289	790	887	887	917						
299	838	895	913	921	625	703	747	756		
300	842	873	882	891	668	762	792	807		
301	826	867	896	892	668	770	807	823		

	50 Hot				100					
308	727	753	772	770	555	635	667	660		
309	812	842	883	847	720	780	805	815		
310	847	833	853	845	745	792	802	809		
311	820	895	892	892						
312	657	767	770	785						
313	850	897	892	890						
314	836	80	903	907						
315	686	776	777	787						
316	542	640	641	685						
317	600	650	648	677						
318	735	830	832	847						
319	727	797	800	817						
320										
321										
322										
323	896	936	930	925						
324	775	857	860	857						
325	885	937	936	942						
326										
327	832	913	916	922						
328	666	735	700	635						

	100	1 gm Zn Sulph.	2 gm Kanaeuth.	Hot —		150 Hot			
252	618	652	662	673	Co	390	431	447	46
253	445	50	507	542	Cu Sulph	595	755	790	815
254	898	843	855	880					
255	687	733	743	757					
257	572	627	665	677	Co			483	77
258	537	570	602	607		482	483		
260	915	917	925	920		817	846	857	81
261	525	566	591	608		437	472		
262	641	686	693	700		583	591	Co	
263	512	563	580	591		415	442		
264	793	833	858	865		700	768	791	80
265	950	982	988	988		527	902	920	90
266	787	817	845	841		656	733	759	75
267	770	793	802	816		593	652	673	66
269	895	908	907	912		787	860	877	891

250
125
125
100
50
25
312 5

3) 1000
333
1333
1332
266
1299
133 3
1333 6
2359

312) 746 (2,4
624
122

135
24
540
270
324

NOTE

Record of condition of Cut out cells that have been long time on hot test.

V184 – pulled out 2/3 of length for inch 1/32 open
V163 opened up nearly whole length 3/4 inch opened 1/32
V175 " " 1" 1/32 bottom 20/000 nearly to end
V182 " same as 173
V156 " " 1/16 = 2/3 of whole length – Very bad
V187 " up very little – about 004 for 1 inch –
V166 " " 2/3 length 1 1/4" opened 1/32
V169 " " 1/2 inch 10/000 bottom very little very 002.
V180 " " Very little 1/2 inch 002 bottom 004
V167 " " 1 1/2 about 1/32 larger open nearly to end –
V181 1 1/4 opened 1/16 – larger open to bottom end
V190 1" opened 40/000 1/2 inch on bottom end not opened
V186 4/5th bottom length opened 1/16 about slightly up
V171 1 1/2 opened up 004
V172 1 1/2 " 1/32 1/2" on top not opened
V174 2" " 008
V177 1 1/4 " 1/32
V170 Very little opened up very little 005 for 1/2"
V176 2 1/2" open up slightly Very bad
V155 2 1/2 " 20 To 10/1000
V157 2 1/2 " 1/32
V164 Bottom to be opened up – perhaps 1/2 open 002 in
V165 " " "
V163 Opened up 2 1/2 about 10/1000
V192 1 1/2 opened up 1/32

NOTE

344	582
345	542
346	616
347	621
348	620
349	643

Reduced by Augustus Roff

90	420	
68	375	
62	400	

	166 Rum				200 Kol.				
78	672	686	620	765	565	665	672	Co	
80	597	615	545	692	492	515	Co		
83	742	762	687	842	645	757	752	777	
85	850	850	750	911	772	872	875	880	
86	440	467	376	550	425	502	Co		
87	422	483	353	582	476	555	Co		
89	792	808	643	875	650	788	790	815	
93	777	775	743	50	777	500			
96	627	662	628	482	682				
107	675	667	635	480	675	572	606	681	Co
108	940	912	877	685	915	645	717	770	765
109	575	587	570	397	602	496	522	550	Co
110	650	721	713	512	760	585	635	680	671 Co
117	607	625	605	440	652	400	432	492	Co
130	710	676	683	507	722	532	582	626	612 Co
131	620	597	635	450	670	415	50	525	Co.
135	845	900	900	883	767	537	595	Co	
140	775	875	868	850	775	825	837	813	
141	857	940	950	932	855	897	937	917	
144	575	702	700	687	503	562	610	592	Co
145	555	695	692	687	585	622	650	633	Co
147	678	840	847	826	582	641	670	652	Co
149	592	750	760	737	757	750	773	742	
151	500	692	690	675	510	558	590	Co	
152	597	815	807	800	633	700	733	710	
154	692	847	900	885	796	837	877	852	
158	548	750	750	740	595	627	667	Co	
159	465	697	695	677	538	571	553	Co	
162	720	947	953	925	892	915	955	937	
165	767	797	700	672	635	653	673	652	Co

	166 Rum				200				
173	540	795	800	772	696	702	777	747	
178	550	752	755	712	500	496	517	Co	
179	617	837	842	817	605	577	620	Co	
185	466	708	705	686	457	492	512	Co	
188	628	910	908	895	903	918	947	920	
189	580	807	812	787	637	657	677	630	Co
191	507	775	782	770	612	675	657	Co	
193	670	892	892	865	896	915	931	915	

	150	200				
93	777	613	676	700	682	CO
94	CO					
95	CO					
96	627	493	543	585	CO	
97	CO					
98	CO					
99						
100						
101						
102						
103						
104						
105						
106						
107	695					
108	840					
109	830					
110	850					
111						
112						
113	647					
114	CO					
130	750					
131	800					

Sources think Sunset is very old maybe 1600.

Sunset Hill Annexation Book 4 Code.

	50				
329	950	950	943	927	
330	935	947	947	941	
331	750	822	850	856	
332	955	966	962	955	
333	900	925	925	917	
334	960	972	967	958	
335	850	900	908	906	
336	895	908	905	900	
337	661	750	760	767	
338	917	920	918	915	
339	937	925	922	917	
340	932	928	927	923	
341	720	733	738	735	
342	900	890	877	865	
343	989	972	952	932	

296																							
297																							
298																							
299	801	876	902	910	912	925	Hot 1000																
300	770	830	860	862	882	883	625																
301	820	867	881	885	911	905	668																
302																							
303																							
304																							
305	605	767	731	718	715	725	753	815	800	826	697	797											
306	601	748	719	703	705	717	725	773	767	797	800	830											
307	606	767	737	722	717	733	757	817	802	810	760	757											
308	565	781	752	732	737	761	772	555															
309	566	781	726	737	747	760	770	720															
310	577	776	763	740	750	758	770	745															
311	420	670	710	800	786	816	748	727	765	790													
312	435	671	772	794	786	805	743	766	830	872													
313	375	633	757	793	744	807	745	747	767	790													
314	440	665	780	815	770	818	803																
315	417	657	782	812	757	812	800																
316	475	675	783	805	748	795	777																
317	442	670	767	790	795	800	796																
318	455	670	755	770	722	778	762																
319	477	677	742	765	736	760	777																
320	460	616	673	690	647	695	697	705	527	782	751												
321	610	697	522	657	642	673	646	673	530	782	750												
322	410	570	650	673	642	650	685	683	535	765	742												
323	50	572	650	766	763	800	843	827															
324	462	697	742	833	800	827	867	825															
325	470	667	797	843	880	831	861	815															
326	385	572	750	812	800	822	876	863															
327	437	603	753	807	767	791	898	785															

Hot Sellers

from ~5 to 10%

Hot

329	3100	353	627	650	715	777	820	690	941	920	910												
330	188	1370	496	546	615	681	760	641	998	983	948												
331	200	347	500	550	605	677	756	641	872	992	997												
332	601	869	908	880	881	915	881	822	997	966	933												
333	560	832	915	867	878	921	877	786	997	970	953												
334	587	887	936	905	916	950	900	808	1023	991	981												
335	582	840	896	842	873	916	870	785	962	961	972												
336	585	845	886	866	865	910	847	782	963	937	934												
337	580	842	897	875	872	941	867	811	975	945	931												
338	650	832	892	835	796	930	900	861															
339	695	838	890	833	832	931	903	893															
340	710	862	907	850	885	950	921	908															
341	425	658	845	857	890	1000	975	965															
342	467	715	861	850	863	955	932	922															
343	592	842	956	928	938	1023	1000	981															
344	582	723	767	748	730	730	775	780	777	762													
345	542	726	775	756	738	732	790	782	770	767													
346	616	732	772	752	735	732	750	756	758	751													
347	621	736	780	757	747	745	605	650	672	667													
348	620	737	776	748	735	730	735	740	725	712													
349	642	786	816	800	767	757	710	700	673	630													
350	478	581	530	533																			
351	412	462	547	575																			
352	526	600	643	663																			

Note-Warren nickeling Co

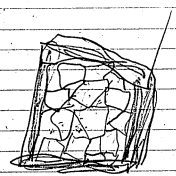
Cake on Drum –

Uses 160 amp 10 Volts –

Colorless 3.7 amp per □ sqr Decimeter

Cobalt Solution about 2/3 Conc – Cold

With Zinc Use 7 amp per □ sqr Dec



132	415	460	492
133	450	502	537
134	467	491	510
135	521	550	565
136	500	553	555
137	472	575	580
140	787	820	843
141	828	863	880
142	521	530	573
143	600	640	665
144	653	700	721
145	700	750	780
146			
147	793	836	863
148	421	435	450
149	782	767	815
150	550	587	613
151	657	717	726
152	737	796	812
153	530	567	587
154	805	835	845
155	582	637	637
156	615	680	690
157	475	537	553
158	677	731	732
159	641	700	720
160	543	565	587
161	518	610	592
163	447	501	521
164	400	462	471
165	500	563	568
166	400	415	421
167	527	582	595
168	655	700	708
169	512	570	575
170	478	550	580
171	557	615	667
172	425	496	508

173	748	770	770
174	452	513	547
175	531	575	620
176	357		
177	580		
178	748		
179	720		
180	310		
181	472		
182	561		
183	426		
184	458		
185	620		
186	517		
187	572		
188	777		
189	648		
190	511		
191	612		
192	480		
193	812		

50

272	591	940	952	961
273	952	957	960	957
274	691	733	780	785

Concentrate from Dillsburg Mine
Lingnecker — 18% Tails 82% magnetic
The Tails are nearly all pyritics,
there being very little gangue in the
ore sample used — Sample was taken
from a shipping ore pile of 10 Gallon
than run of mine, which averages
43 shipped — The Crushing
was thro 50 mesh — I next
divide Cone into 2 samples
& put one thro 80 mesh
the other thro 100 mesh
to see if more pyrites can
be got out —
The Original Tails weighed
21.650 grm after Cone on glass
weighed 14.270 grms —
or 14.7% of pyrites in the ore
say 14% —

25 Sallot

25	687	645	730	733
26	806	805	800	796
27	445	540	575	582
28	795	742	760	757
29	833	360	385	377.00
30	724	911	850	883
32	782	863	890	887
33	757	817	886	836

	100 Hot					150 H				200 Hot			
25X	800	817	827			720	765	779	767	767	768	766	
26	802	790	812			747	780	786	768	806	55	796	
27	642	727	712			560	55	55	760	515	586	612	
28	768	807	793			740	781	785	779	812	803	802	
29	881	577 ?	602			375	447	483	472	410	436	450	
30	880	920	875			785	870	883	877	887	880	887	
31	935	900	875	870		896	896	890	881	868	897		
32	900	922	903			838	902	907	905	882	895	907	
33	850	887	853			840	877	880	881	857	850	857	

	50 Hot						
251	730	523	695	696	682	Co	

	Cont
225	763
226	747
227	716
228	761
229	767
230	757
231	657
232	630
233	722
234	812
235	789
236	830

	4 Hot		
25X	803	780	
26X	781		
27	621		
28	803		
29	461		
30	890		
32	907		
33	853		

	50 Hot						150 Hot					
240	699	400	630	630	620	Co	516	546	570	657		
241	802	535	860	850	845		790	795	820	810		
242	770	340	575	575	585	Co						
243	649	452	711	697	692		450	492	512	505		
244	827	648	887	556	870		803	820	850	840		
245	527	397	592	537	510	Co						
246	892	935	935	936	909		810	840	882	867		
247	556	513	557	559	547		245	212	310	372		
248	792	870	910	813	782		637	660	707	690		
249	652	435	597	595	575		198	240	266	265		
250	797	860	1003	1021	987		842	907	967	948		

Continued from page XX

	6yr roll't				150					200		
34	772	815	790	790	777	807	800	797	792	820	827	821
35	771	820	787	787	785	817	811	812	792	825	828	sc
36	711	537	561	570	600	447	527	540				
37	756	626	637	644	663	500	587	598	600	481	sc	536
38	510	280	267	267	306	195	217	215				
39	777	642	667	664	672	677	675	677				
40	672	692	670	692	654	537	667	613				
41	865	882	892	830	815	842	837	845	816	755	880	810
42	747	521	575	587	575	418	492	sc				
43												
44												
45	782	747	740	737	717	760	766	770	742	750	770	775
46												
47	776	587	592	595	590	sc	470	496				
48												
49												
50	550	10	550	530	497	sc	472	480				
51	500	430	417	420	404	287	280	283				
52	532	430	427	390	406	sc	320	330				
53	687	665	625	637	621	582	548	611				
54	787	753	745	742	725	728	735	745	740	548	587	622
55	842	800	775	775	760	800	793	797	792	820	831	822
56	287	292	374	260	223	305	340	347				
57	855	697	715	722	707	538	617	sc	608	437	473	502
58	695	455	540	550	574	360	420	480				
59	862	835	850	843	880	808	832	685	675	685	687	
60	794	790	800	787	792	812	830	572	603	607	607	
61	445	447	447	471	290	295	290	235	245			
62	481	486	540	500	00	Co	Co	Co	Co			
63	870	852	877	862	916	902	920	887	895	875	880	
64	430	470	Co				Co	Co	Co			
65	904	887	906	890	930	903	910	762	746	792	812	
66	832	817	837	825	787	790	810	563	587	600	612	
67	632	612	615	610	380	412	433	360	270	Co		
68			485	477	Co		Co	Co	Co			
69			830	810	845	797	842	596	587	Co		
70			814	797	730	730	792	763	785	762	772	
71	697	692	692	715	641	625	690	576	603	605	610	

	roll't				150 Not			200 Not			
72	[illegible]				Co						
73	241	213	205	187	Co						
74	366	320	297	287	Co						
75	460	455	520	510							
76	832	839	850	842	sc	695	835	573	653	Co	
77	650	686	697	707	598	563	568	500	530	Co	

	Not 200	
34	800	
35	817	
37	547	Co
41	812	
45	770	
54	637	Co
55	847	
57	530	Co

	621	650	690	694	715	737	750	720	727	750	742	747			
226	618	677	652	696	706	730	737	712	717	736	737	737			
227	607	650	685	695	703	725	730	707	717	682	692	700			
228	643	712	720	725	737	755	721	730	735	700	755	760			
229	610	700	705	715	721	741	741	722	724	757	752	741			
230	625	685	696	700	706	711	755	693	703	600	745	760			
231	620	692	572	587	605	622	737	748	762	737	657	665			
232	770	714	557	593	611	615	631	610	609	607	627	612			
233	652	775	542	580	587	587	607	585	592	785	710	710			
234	640	776	787	793	802	762	807	790	790	50					
235	666	725	745	732	755	746	770	743	744	807	840				
	662	743	747	758	758	765	785	750	763	877	815				
237	767	767	770	777	782	767	50	862	855	913	835				
238	612	767	767	721	712	732	745	833	823	866					
239	633	765	711	721	722	736	747	820	809	825					
240	750	785	798	790	772	757	772	789		811					
241	740	777	778	777	767	750	763	770							
242	717	765	791	772	762	745	766	780							
243	750	825	857	836	850	805	822	820							
244	715	792	820	807	785	785	800	874							
245	725	777	777	791	782	765	782	792							
246	792	865	895	875	870	850	870	867							
247	737	815	837	820	816	800	815	802							
248	736	815	832	814	810	795	812	797							
249	855	1001	977	992	990	987	952	972	997						
250	827	1021	1003	1012	992	990	973	992	965						
251	942	1010	1002	1007	987	997	983	997	962						
252	866	860	895	878	907	938	932	920		50					
253	877	757	824	851	862	886	905	888		680	800	837	785		
254	587	775	850	865	883	907	921	903		600	687	700	785		
255	587	890	911	927	937	957	952	945		782	877	857	815		
256	675	880	925	922	930	948	940	932		823	867	884	884		
257	640	912	946	932	941	980	945	936		500	592	637	641		
258	575	847	902	897	901	927	887	882		741	800	815	785		
259	575	870	948	897	897	926	885	890		432	466	499	785		
260	575	907	932	920	915	940	890	900		642	725	797	785		
										826	918	932	785		

50 Hot

261	312	545	700	740	766	795	785	777	677	732	777	750			
262	607	803	860	837	845	875	865	855	707	810	815	800			
263	640	815	891	860	872	902	870	860	695	732	765	728			
264	697	853	900	867	880	909	896	892	777	860	887	857			
265	767	902	932	906	925	945	926	921	910	950	962	937			
266	700	871	910	892	906	930	911	901	843	903	902	895			
267	550	802	875	860	878	905	887	877	783	873	887	885			
268	625	847	900	878	898	920	909	902	445	456	502	858			
269	600	821	882	872	898	906	895	897	782	887	905	900			
270															
271									680	962	952	903			
272	628	853	873	876	882	912	922	887	667	947	917	905			
273	660	850	862	872	867	892	912	880	697	972	941	932			
274	617	881	887	907	918	932	936	898							
275	575	752	790	785	757	751	760	780							
276	532	742	761	763	733	750	752	680							
277	557	743	746	745	727	737	745	687							
278	587	922	935	945	946	932		865							
279	592	916	928	927	920	917		841							
280	930	956	971	968	973	953									
281	621	875	895	910	918	932	932								
282	651	881	870	885	915	925	925								
283	772	780	835	882	893	893	907								
284	485	622	613	613	607	618	612	665							
285	485	623	605	602	600	612	618	655							
286	496	633	612	605	603	615	623	655							
287	644	851	893	923	931	945	938	941							
288	56	—	640	912	956	990	971								
289	650	855	896	920	930	945	937								
290															
291															
292															
293															
294															
295															

	100 Hot				150				
198	570	740	787	793	643	666	692	700	CO
199	395	495	527	543					
200	578	757	782	786	662	688	688	700	CO
201	497	560	576	585					
202	492	547	566	579					
203	398	452	455	460					
204	461	471	482	480					
205	610	642	650	650					
206	495	517	537	557					
207	686	776	757	783	555	615	643	650	CO
208	442	502	537	583					
209	440	515	546	560					
	100 Hot			150 Hot					
210	892	830	912	850	864	855	867		
211	860	793	910	737	770	760	782		
212	832	792	915	732	767	760	782		
213	500	493	585	292	250 CO				
214	275	298	316	316	297 CO				
215	290	295	316	387	350 CO				
216	717	682	765	663	696	687	700		
217	495	466	540	440	445 CO				
218	887	772	875	880	882	845	855		
219	867	50	872	826	850	827	835		
220	317	293	325	287	250 CO				
221	815	782	832	815	825	792	800		
222	765	695	790	765	788	767	782		
223	757	696	793	707	743	735	755		
224	676	640	723	637	673	665	690		
225	762	716	798	715	755	740	755		
226	709	692	765	566	607	607	630		
227	792	745	786	50	788	740	727		
228	792	731	740	550	590	540	560		
229	692	670	682	530	572	557	587		
230	817	762	782	668	721	695	710		

	100			150			
234	965	406	952	930	860	832	830
235	960	795	837	891	828	807	810
236	1006	850	880	940	872	845	850

Page XX

	1	2	3	4	5	6	7	Sec Reference 9	9		Subtot		
26X	570	661	710	735	736	720	722	750	746		800	797	796
26X	566	660	696	732	725	705	712	740	740		802	795	777
27	617	641	671	686	700	677	652	707	697		757	748	767
28	567	676	693	704	737	707	715	740	735		781	791	787
29	595	690	717	737	753	737	722	750	736		737	750	745
30	815	911	917	905	907	927	937	958	932		957	955	991
31	689	890	886	887	872	872	888	900	875				
32	750	873	797	931	920	917	930	945	930			932	923
33	587	786	851	892	850	825	810	863	835		800	870	867
34	510	682	701	687	700	725	693	712	715		837		
35	592	727	745	741	743	740	739	739	745		857	818	800
36	535	717	749	723	737	750	746	732	737		872	791	791
37	722	783	801	807	782	797	822	799	787	786	600	672	696
38	721	657	641	705	688	682	835	777	796		712	727	750
39	437	535	555	567	577	567	570	576	561	56	477	500	506
40	636	732	746	757	766	762	751	772	780	772	477	550	750
41	517	735	777	807	790	785	780	795	800	797	667	657	657
42	493	777	791	825	806	800	801	810	819	805	587	653	680
43											647	695	735
44													
45	466	635	691	707	694	56	701	712	707	710			
46													
47	610	762	785	810	793	785	796	792	802	800	650	725	760
48													
49													
50	521	685	690	697	699	698	697	692	692		542	722	546
51	56	56	473	511	502	520	512	515	518		510	492	445
52	500	570	583	594	596	587	577	582	590		460	465	531
53	510	560	587	606	607	602	588	592	600		605	666	682
54	632	676	710	732	732	725	707	707	717		797	765	792
55	650	722	799	767	762	765	762	746	755		755	722	755
56	767	790	830	832	865	860	849	856	850		800	800	800
57	793	816	820	819	785	792	799	831	832		887	821	865
58	715	762	791	790	750	750	749	760	759		692	670	625
59	692	737	749	762	791	791	793	792	791		790	885	817
60	636	736	745	763	785	788	805	807	796		761	788	793
61	750	785	788	799	800	796	794	794	794		481	505	556
62	687	744	750	790	775	765	792	791	797		594	585	617
63	635	788	792	825	833	820	787	816	857		857	857	857

64	628	774	765	820	823	810	834	50	833	Subtot	550	537	595	606
65	682	794	807	851	839	837	841	835	834		828	805	840	865
66	660	762	775	805	798	782	817	820	805		837	852	841	815
67	692	765	770	790	780	760	775	780	777		762	795	767	797
68	665	784	790	803	798	778	822	825	818		525	530	595	592
69	645	716	732	758	790	724	763	767	763		850	872	792	776
70	663	724	735	772	790	722	761	767	762		885	810	785	770
71	665	722	727	727	722	705	750	755	745		671	682	725	712
72	572	720	737	712	700	660	650	610	670		662	700	757	745
73	671	709	721	685	670	633	630	550	550		373	257	260	277
74	587	700	712	681	671	655	675	650	687		440	408	407	400
75	520	769	820	806	805	795	847	847	836		600	592	652	640
76	525	780	825	822	803	794	850	850	836		846	846	858	850
77	555	805	833	810	807	790	800	845	830		745	752	788	767
78	442	711	782	830	857	847	825		817		825	830	835	
79	486	717	749	790	807	792	782		627		712	692	717	
80	470	732	771	820	835	815	800		725		777	775	800	
81	702	777	772	850	820	800	799		697		737	732	765	
82	703	782	787	813	830	807	795		607		660	630	685	
83	697	762	760	775	790	767	772		805		802	750	822	
84	722	808	803	817	822	805	799		662		682	670	702	
85	752	831	816	833	830	820	815		905		845	845	918	
86	735	820	822	833	845	823	812		575		617	615	650	
87	733	818	817	855	850	824	824		617		725	820	787	
88	692	762	762	787	787	770	772		575		630	600	635	
89	777	867	856	882	875	870	840		817		895	840	867	
90	430	733	850	843	810	815	817		570		625	615	645	
91	491	831	891	896	833	800	855		505		575	570	602	
92	437	791	849	810	797	837	861		482		577	520	565	

93	606	890	913	966	945	927	934	555	900	900	917				
94	542	816	865	921	910	897	902	630	665	650	710				
95	556	835	892	949	930	919	919	650	700	687	707				
96	638	835	842	860	847	836	840	795	880	825	840				
97	600	822	837	862	865	837	845	712	765	760	778				
98	610	833	856	892	866	850	850	722	700	765	770				
99	522	830	922	915	965	952	962	440	497	475	510				
100	552	832	902	830	923	916	917	482	515	510	531				
101	450	725	821	870	880	877	886	540	574	595	605				
102	482	800	850	917	908	900	905	532	575	575	582				
103	495	815	867	935	917	907	910	530	620	622	625				
104	472	830	850	925	911	900	907	630	722	720	760				
105	537	825	867	912	900	889	892	521	553	557	572				
106	540	850	847	921	900	891	895	587	591	615	628				
107	522	820	876	935	915	909	907	600	700	725	783				
108	540	820	827	886	876	867	870	865	892	833	856				
109	530	812	836	897	882	879	877	730	740	755	778				
110	545	822	824	875	867	869	865	435	427	822	843				
111	62	157	215	312	375	435	497	362	383	405	408				
112	105	225	310	410	449	480	525	347	377	357	400				
113	35	175	250	377	422	461	512	442	486	457	470				
114	552	780	775	810	790	776	773	515	572	575	585				
115	560	770	779	827	810	770	801	804	740	708	700				
116	582	802	792	832	826	824	800	497	535	537	553				
117	640	921	895	935	937	921	923	857	890	891	903				
118	682	900	874	912	890	891	892	522	583	603	626				
119	697	737	705	956	931	923	930	535	567	584	617				
120	740	850	849	900	882	875	877	515	565	582	618				
121	712	872	825	891	845	850	857	582	635	640	663				
122	712	822	795	845	827	817	822	497	508	527	542				
123	565	825	822	881	860	855	860	686	795	757	760				
124	600	840	830	872	888	879	877	615	665	647	641				
125	612	850	833	891	887	877	876	630	663	675	687				
126	625	800	857	750	734	732	5	575	565	630	657				
127	650	770	790	772	757	766		535	577	580	587				
128	657	730	792	786	764	767		587	647	644	652				
129	712	845	870	925	917	912		640	727	733	745				
130	725	842	910	895	887	865		875	820	800	811				
131	720	861	921	903	909	906		760	788	778	782				

	1	2	3	X 5%											
132	597	775	802	815	842	835	872	535	550	575					
133	570	740	765	770	815	785	812	610	612	627					
134	583	773	817	815	865	835	885	877	897	617					
135	852	881	892	890	931	900	915	925	927	937					
136	970	900	907	905	949	906	960	735	750	767					
137	865	891	900	898	949	902	562	671	662	697					
138	x														
139	76						55								
140	906	927	931	931	975	941	772	882	847	872					
141	876	915	917	915	960	927	770	800	900	910					
142	850	885	892	893	940	897	527	646	647	662					
143	896	932	937	937	981	947	632	742	767	770					
144	882	928	932	932	975	941	627	752	780	777					
145	886	936	941	940	984	953	665	790	802	785					
146	725	885	905	905	945	922	461	560	575	582					
147	725	866	875	875	907	880	552	775	800	808					
148	678	850	872	872	912	872	515	615	622	640					
149	626	830	870	883	921	878	730	820	827	840					
150	570	775	835	840	896	862	587	675	690	715					
151	612	815	845	848	890	878	662	772	817	840					
152	786	870	877	878	912	881	732	840	860	917					
153	792	847	868	873	905	878	645	710	722	735					
154	745	847	868	873	905	870	865	907	912	927					
155	700	842	867	875	903	890	595	722	813	787					
156	750	877	900	905	940	907	597	793	748	762					
157	707	847	852	866	897	887	562	637	647	652					
158	787	842	850	857	890	847	718	787	786	785					
159	766	900	915	917	947	911	648	740	772	763					
160	746	871	885	887	924	885	742	851	850	843					
161	757	870	886	883	910	863	600	665	668	700					
162	715	871	884	880	907	864	402	460	461	477					

163	715	850	850	860	869	835	520	600	608	642																									
164	665	812	840	840	863	825	450	513	533	557																									
165	650	830	850	872	905	863	390	587	618	661																									
166	697	820	731.5	842	816	835	470	550	567	605																									
167	670	808	729.5	832	812	830	537	617	640	685																									
168	720	855	875	883	870	861	607	710	736	757																									
169	702	828	845	850	897	847	550	647	683	710																									
170	652	797	815	823	865	832	532	635	665	713																									
171	635	807	843	850	891	858	487	570	586	628																									
172	670	805	836	832	875	890	477	610	635	670																									
173	662	790	820	822	866	832	731	772	782	800																									
174	663	765	809	815	869	835	635	712	712	747																									
175	667	770	810	817	869	837	487	567	592	612																									
176	757	807	828	833	817	809	817	565	650	690	665																								
177	745	796	806	795	760	762	777	697	715	700	725																								
178	732	764	775	768	787	750	759	792	810	767	751																								
179	737	775	791	796	787	785	792	712	747	746	773																								
180	735	757	778	783	767	757	765	558	625	610	637																								
181	725	769	777	755	772	762	775	603	655	655	651																								
182	695	735	751	761	750	712	750	642	712	693	715																								
183	670	721	735	740	738	725	735	576	637	641	662																								
184	672	737	752	760	747	711	747	527	615	600	625																								
185	660	690	705	712	700	697	705	680	735	710	726																								
186	682	725	741	747	740	732	737	600	692	663	681																								
187	675	710	725	733	735	717	725	655	730	705	720																								
188	687	717	736	743	730	725	735	775	855	765	790																								
189	682	691	710	717	697	697	697	712	782	727	737																								
190	670	702	721	730	727	710	715	685	760	733	740																								
191	697	747	770	775	765	757	766	731	780	750	778																								
192	677	755	775	782	767	757	762	697	692	682	710																								
193	675	762	785	792	780	772	780	785	795	783	808																								
194	77	87	105																																
195	87	80	43																																
196	67	77	98																																
197	43.	53	43																																
198	862	935	977	993	993	991	995	1000	896	990	940	932																							
199	825	930	975	955	972	962	950	968	785	757	759	753																							
200	850	917	982	979	981	977	968	982	891	945	934	920																							
201	640	695	720	732	732	723	720	710	580	590	605	605																							
202	625	675	659	695	682	677	658	685	630	645	642	635																							
203	605	650	655	675	660	677	628	662	467	487	476	490																							
204	640	700	716	727	712	713	670	695	558	572	555	570																							
205	630	675	690	700	682	679	652	674	618	645	685	697																							
206	602	637	655	665	663	660	617	645	595	655	619	647																							
207	860	962	1010	1010	1003	1000	990	1012	715	790	747	752																							
208	790	905	950	957	957	955	947	962	530	580	587	606																							
209	652	842	900	895	892	890	880	877	600	650	641	632																							
210	775	967	990	967	955	953	997	1000	1021	826	850	820																							
211	842	947	941	949	941	958	892	957	895	900	921	920																							
212	785	945	938	950	937	963	945	940	894	900	926	935																							
213	732	877	932	992	1027	1076	1098	1090	904	915	1017	1030																							
214	835	1025	1025	1020	1033	1052	1060	1051	577	579	612	617																							
215	867	1022	1030	1027	1050	1065	1077	1067	650	750	777	785																							
216	710	805	803	842	796	810	827	817	795	765	775	800																							
217	715	781	775	775	766	777	798	807	635	630	637	660																							
218	690	745	750	755	740	754	777	786	816	767	772	777																							
219	723	785	770	767	766	773	790	803	801	775	778	790																							
220	711	773	772	770	770	780	797	806	437	442	445	45																							
221	691	745	730	726	720	733	752	763	727	722	775	772																							
222																																			
223																																			
224																																			

All essential tubes to be welded in the high temp - also plated previously in strip with 70% Co 30% Ni —

flake used thro 20 mesh

June 21 1905 Tube tests.

Screen green through 20 on 180 - Dry + when dry moisten with slightly acid standard Metaphos K Sol + keep under cover warm for several hours then wash with water to abstract dissolved Ni - dry & make in Tubes 7 + 3 flake Ni Co alloy - The idea is that the particles will be made more porous by solution internally the high viscosity preventing

2000 X Circulation - 5 tubes 21%

2001 X ditto deadly acid - 5 Tubes 21%

Put in Molasses, standard slightly acid Metaphos K saturated with nickel. percolate out in 5% KOH

2002 X at 1st afterwards 1½ 5 Tubes say 1½ Molasses 1/2 Metaphos

flake used thru 20 mesh

the idea being that the precip $Ni(OH)_2$ will accrete & make better contact
The tubes are to be dried after percolating + then corrugated not before - all round corrugtd, 21%

Dup 2000 2001 + 2002 but corrugate before percolating -

2003 X Corrugated all around before percolating - Dup of 2000 - 21% 5 tubes

2004 X Corr all around Dup of 2001 5 tubes 21%

2005 X Corrugate all around Dup of 2002 X 5 tubes 21%

all above 20 on 180

2006 X Reg flake 743 + molasses 20 on 180
Corr all around before percolating
5 tubes 21% flake thro 20

2007 X Reg flake 743 + molasses 20 on 180
Corr all around after percolating
5 tubes – 21% flake thro 20

2008 X ~~Dup of 2006X except~~
20 on 30 mesh 21% flake thro 20

2009 X Dup of 2007 except 20 on 30
21% flake thro 20

2010 X
Dup of 2006 except flake through
10 mesh

2011 X Dup of 2007 except flake
thro 10 mesh

use just enough to cover it —?

2012 X 20 on 180 soak in slightly acid Standard Metal Phos K 6 hours hot then wash Metal out + dry (squeeze out water, + blend) use with flake 7+3 Reg Nobelope Corrugate after percolating — all around Corrugate.
Idea being to make green packet more porous internally 5 liter 21% —

2013 X Dup of 2012 except. Coring before percolating —

Mix some Recently precip $Ni(OH)_2$ with the molasses + cover it then put in flake —

Mix some ~~[illegible]~~ acetate Ni with molasses Cover green + then flake —

Tube 25X
1st Run

.570

50.00
10.00
2.00
82.00 | 50.000 | 49.300 | 61

50.000
2.000
1.000
80.00 | 10.000 | 8.000 | 2.000 | 1.600 | 400 | 125

7000 | 20.000 | 14.000 | 6.000 | 5.600 | 400 | 320 | 80 | 5 | 28.57

50

8200 | 10000 | 8200 | 1800 | 1600 | 200 | 127

82.00 | 22.000 | 16.400 | 5.600 | 4.800 | 800 | 26.8

25 X

Tube No 25 Edison –
5.000 green thro 20 on 180.
Reg molasses boiled down till thick
1 gram – 2.000 flake Co Ni 70+30
made by Warren in drum machine –
screened thro 20 mesh –
Covering power OK = by using
Molasses very thick it cant absorb
in pores of Ni + covers green OK
but not all the particles are
covered but nearly all –
put some flake in + worked it by
squeezing then added more
+ squeezing in fingers –
not corrugated – 3 lb Tamp
weight. fall 5" –

Weight active material 5.031
No of Tamps – 41
Caliper – 280 ~~[illegible]~~
Tubes Ni Co plated + tubes welded

3.14 green
.285 flake

possibly the was 2.200 flake mix
2.000

16.6% Metal to green

Tube 26
1st run
566 | | | | |

8.145 | 10000 / 8145 / 1855 / 1628 / 227 | 61.8

8.145 | 10000 / 8145 / 1855 / 1628 / 227 | 12.25

8.145 | 21450 / 17900 / 3550 / 2900 / 650 | 26.3

6135 / 2630 / 87.65 | 26300 / 26292 | 30

No 26X

Edison Tube 26-X same as 25
Except 2.145 flake. + the flake
pell put in at once, think this
bratway as it seems cover
better not so many free
particles - 5000 green 1.000,
mol - there are free green in it
but these are patches that
did not get covered with
Molasses. The only thing
now is to find how to cover
all the particles with molasses
& I think that 1/3rd of the
flake can be dispensed with.
3 lbs wt - 5" fall -
Number of Tamps 42
Calliper 280
Wt material active 50030
Tubes sheet plated Cath & welded &
then tube welded - not Corr

61.3 g
12.25 mol
26.3 flake 3.08 green

7 & 3

Tubes 27
1st Run
517 –

5000
2145
7145
8

(61.3)
5000
2145
7145
1000
4145
31

(26.3)
2145
1000
3145
16
4145
213

8145

(12.25)
1000
4145
5145
16
32

4145

Edison Tube No 27 –
5000
2145 Comflake 70/30 –
1000 Very stiff Molasses.
Warmed green & mol. – it mixed
& worked like a dough – put acc.
The flake in at once – it was
hard to break clots, after
mixing well, screened it thru
20# found about 20% balls
No sign of a green particle

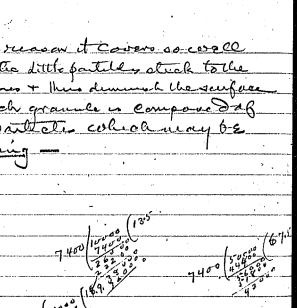
Dust Corrugate,
316 5" Tamp –
Active material 4.785
Number Tamps 39
Caliper 1.280
Tubes placed Comm + high heat
welded –
tryed larger than # 25 + 26

61.3 grm.
26.3 tubes
12.25 wire

293 grm

Possibly the reason it covers so well is that the little particles stick to the larger ones + thus diminish the surface & that each granule is composed of several particles which may be a bad thing —

Tubes 28
14 Run
567



Eclum Tubes 28

5000 green
1 400 Corn plated flake —
1 gram Mal very stiff — over Mal
warm — Malus covers ok — very
sticky dough — Malis smack
amount of flake — Covered
perfect — put all flake in at
once — spread dough out as
much as possible when flake
put in — only twisted fingers very
gently to break back up — &
finally scraped thru 20 mesh
& then broke little back up
Crumbly — then pressed
all hard for a little while
not a green particle is visible
79% Mals 21% flake — Think can
Cover with less flake
Dried longer than 27

Dent Corn
3 lb 5" Drop 37 —
Calliper 278
Wt delivered material 4.675
Tubes plated Corn + Tubes also weeded
3.15 green

Tubs 29
1st Run
688—

5000
1400

Tubes after 28 were never
fried. use at morning
or put in bottles to
keep damp

—Mol + grease warm when mixed

Edison tube 29.
Not to be dried but put right in tubes
to test lubricating properties of
the Mol & mol mixture — Covered
perfect 5000 grain
1 gm diffused 1400 Mn Co 70/30 flake —
Worked grease & mol warm — mixed the two
mostly in the little Mol dish before
putting in big dish — get four mix here
before transforming — this proportion
way — seems to have a lot thicker than
usual probably pressed more water &
put more mol in but not much
if he did — broke balls up — screened
& then retorted balls not powering
70 mesh = Not dried — Covered perfect
Dont Cor — 3 lb 5" drop —
Caliper 280
Weight active material 5.350
Tubes plated welded + tubes welded
Jumps 37
Not Cor

Tubes

361 grain

Jubs 30
1st Run

812 = 1

7250 | 1.28 | 1.35 gm

7250 | 1.28 | 1.72

7250 | 1.72

5000 | 5000 | 5000 | 6.8 gm

7250 | 5000 | 6.8 gm

5000 | 1.50 | 1.50

Up stairs 30 31 2 3 4
June 27

Edison Jubs No 30 –

5000 Green 8.12

1250 Nitro 70/30 flake –

1000 Stuff Mat. greenish warm –
Sticky dough – Covers perfect – screened
thru 20 – some balls worked most thru
Balance twisted with fingers broken
up spread green then finger pressed
Then in mat of stuff when then
become coated no oxygen to explode
micro shows only part of one now than
flaky flake = to be ~~[illegible]~~ worked out
dry – Covers perfect. not corr

Active Material — 5.385
Temps — 40
Calipers — 279
Corr plated strip welded then tube welded
Not Corrugated —
316 5" drop 30 flake

Jan 18/06
Reprocessed + temps put on seams
O.K.

3.71 green
3
1.113

Tube 31
1st Run
684=

Edison tube 31

Dup of No 30 Except it is to be corrugated all around before soak
Covered perfect

Calliper 270
Weight active 5 235
Jumper 37=
3" lb 5" Drop
Strips Ni Co plated - Welded - that tube curved

3 lb 5" drop

$\frac{3160 \times 3 \times 2 \text{ in}}{1080}$

Tube 32
1 HP
750

Echman tube No 32 - Same as 30
to be corrugated all around after
Cooking + Drying -

Wt material 5.520
Cal?
Jumps 41 -
McCo plated strip welded - Tubes welded.

3.80 green -
8
114°

3 lbs 5 drop -

Tube 33
1st Run
5.87

5000
1250
1000
7 | 7250 | 1.89

50000
41500
6500
7 | 7250 | 1.72

12750
3500
7 | 7250 | 1.38

100000
82500
17500
7 | 7250 | 2.41

33 Edison tube not corrugated

5000 green
1250 flake NiCo 70/30 -
1000 Caramel 2 made, its thin - works bad - it tests warm Thick mol. hot + green hot, makes a dough, ok Covered perfect - not so much Cutting when put thru 20 meshes
Think much less Caramel amount to get tube prob. ok and start it Thinner - being Colloid poly dont go into pores of Ni hence acc. is available, it also Extremely sticky when it Dries - its full of specs but I will make some good then redo it thinner + Evap down to proper Consistency -
its going to be a winner I think - used Cane sugar -

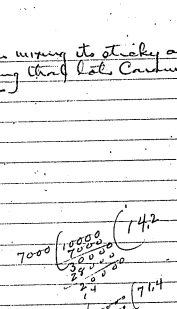
Weight reduce wat. 5.265
Calliper 278
Temps 41
Reg Coll. reduced tube.

20% flake

3.65" Drop

3.63 green -

Note on 34 - after mixing the sticky as a whole - showing that lots Caramel get on the flake —



34 has burrs inside —

Edison tube No 34 Not corrugated

1 gram of fresh Caramel. Made by using Castor oil + Warm at 200 @ 215 Cent in oil & dish with sugar floating - when got ropy ~~[illegible]~~ & just melted put water in - then got it to deep red + then took it off it was very ropy when took it off - dissolved it in Carbonic water say twice it bulk & then filtered it, then Evap it down so that a drop on glass would in 10 sec get sticky Coating - Some put Some in bottle marked No 1 - Evap slice more & put in bottle No 2 + the balance only Evap a little more & marked it No 3 - That used in Tube No 1 & No 1. it can be used Cold & very much thinner than Warm it is more sticky

5000 Green 1000 Carmel - 1000 flake

Com 70/30 - Covers OK -

Actor material ——— 4.960

Calliper - 276

Tube Com welded short - used Tube,

Temp 38

3 lb 5" Strip

1666 of flake

3.54 grm

7.69 Caramel
15.38 flake
green
77.19
16

6000 | 10000
6000
4000
4000
4

6000 } 70.58 green
1500
1000

8500

7500 | 150000 | 20

8500 | 150000 | 1.15

8500

7

6000
1500
1000 | 150000
7.3

36 Edison tubes Not corrugated
6000 green
1500 NiCo 70/30 flake
1000 NO2 Carmine -
Doughy - Covers ok - considerable balls.
Dry after mixing -

Active material 1.720
Jumps 40
Caliper 278
Tubes stock Ni Co/70/30 plated Tubes welded

346 5" drop

3133 green.
20% flake

7.72%
8.33%

Inv. 37 Rolled old way using water
6,000 grm
1,500 flake MCO 70/30 Not coming
Dried before loading

Weight active material 4,768
Jumps 38
Calipers 280
Reg welded tubes.
Great amount green rolled very soft, light pressure — about same as mixing only.

~~3,816 green~~

3,81 green

20% flake

Note Tubes from 25X to 38 -
Some may have burs inside &
others outside as I found
34 had burs inside —
When they Calliper note this
all often this (to 38 will have
burs outside —

The Co Ni 70/30 flake used from
25X to 38 is 72% Co 28% Ni —
There is enough left of for many
more tubes —

Tube 38 — Rolled old way used
21% KOH To wet, Not Corrug
Dried before loading 842 flake

Weight Aluminum Material 5.250
Calliper 279
Jamps 40
Required tube —

No covering power grey green
Color

4.2 green not allowing for KOH

20
50
75
100

Note, There is more caramel than is necessary
800 mlg would be ample & probably
700 would be better, with 1000 it is
very sticky & balls up badly more
than 1/2 balled up 1/16 dia & thinking
to open is bad —
but even with 1800 Caramel with
green thro 80 on 200 there is no
trouble with balls & it mixes ok —

Tube 39 —
6000 green thro 20 on 150
1,500 flake UCO 72/28
1 000 No 3 Caramel
Tabers 20 Tamps —
Rumbag

Wt active material 4,150
Calliper .275
Tamps 19 —
Reg welded tube completed.
3 lb 5" drop —
packed without drying mix

2.92 green

Note.
as far as getting maximum material
in the tube, 100 tamps gives 3.62 green
75 " 3.57 "
50 " 3.52
19 " 2.92

Then not less than 50 tamps is best.
but tests may show something
different —

Tubs 40 Dupes 39 except 50 Tamps
packed without drying mix

Weight active material 5.000.
Tamps 49
Coolipes 277
3 lbs 5" drop
mix not dried
3.52 grism

Tube 41 Drup of 39 except 75 lamps
pkd without drying mix

Weight w/out material 5.070
Caliper .278
Lamps 75

3.57 grain

Lot 42 - Dup of 39 Except 100 Tamps
pH) without drying mix

Weight active material 5.140
Tamps 97
Coulomb .278

3.162 grsm

Tube 43 packed with convex ball
on end plunger - same stuff as in 39 -
pkd without drying mix

Wright active material
Caliper
Tamper

Tube 44 - dup of 39 but with
Reg Lamps
PKJ without dumping mix
To be opened out to see state of
mix

Opened up - bad - flake disconnected &
all very green - unbracking it comes off
in sections where fresh lumps are
at these parts flake reaches clear
across apparently 4 OR - The
edges are good but in the body
The large pieces break up &
separate the flakes & the all very
green - notice the flakes are sometimes
4 to 6 thick one on the other
which is a very poor use of the
flake - we are now trying different
types green also flake to get best
results.

Tube No 45 - Same stuff as
39 - But packed with a round
Rod same dia as rod

Weight active material 4.915
Collapse 27.7
Temp 41 - E
Req lbs
346 grain

We must make a series of tubes with 8 oz 1 lb 2 lb + 3 lbs as now to see if its necessary to pack flake metal as much as graphite.

all previous tubes Thro 20 on 150

Tube 46 – Thro 80 mesh on 150 –

6000 green
1500 flake Thro 20 – MCO 70% flake
1000 No 3 Caramel

Works dryer than when Thro 20 on 150. + seems cover ok – under micro dont ball up much if any + as you work it more + more gets dry powder We are going to open it + see how it looks + if favorable will make a Dup + put on test –

Upon opening it it shows very much better than Thro 20 on 150 – There seems now to be continuous metallic conducting system – of course bear out theory The green shaved be Thro 100 on 200 with 6000 green 1000 No 3 Caramel + 1500 flake – No 47 shaved give very good results, apparently there is no pores between particles all in mass + its difficult to see where there can be circulation except some 150 mesh sand be put in to be dissolved out –

Tube 47 Dup of 46 to 6 ~~2~~ put on test.

Weight active material 4.820
Caliper 277
Tamps 42 -
Reg welded MCo 7/25 tubes -

3.4 gram

notes

Tube 48 - thro 100 on 200
Thro a little too fine. 1000 No 3 Carnauba
Covers ok - thickly but its inclined
to be sticky in mixing flake &
before all balls get out by twirling
to too dry - This tube is to be
opened to see how it looks

Probably is that all through
80 mesh since be ok —

Under micro it dont look well
coated like all previous ones
see lots of green —

On opening sides well stained with
flake & breaking shows good not
work of flake yet as far as
that is concerned, although thro 80 on
180 is good.

not corr

49=9 now make a big lot 30 000 green 5000 No 3 Carbonyl & 7500 flake Co Ni 72/28 – Thro 20 it forms good sticky mix + easy to make put in flake (Thro 20) mixed pretty good some balls but easy break. It gets dry after a while but there would probably be time for mixing in saturated atmos under micro can see lots green but its so well mixed that I think it will be OK there is considerable amount large flake + probably will those fine metal grains the flake should be screened through 30 or 40 mesh to give better covering although this may not give as good test as having some big flake in. We make this lot to test tamp weights

Tube 50 - 5" Drop Tamp
Weight on Tamp 8 oz

Weight active material 3.340
Tamps 39
Caliper 272
Reg used Tube Ni Co plated
2.135 grsm

Tube 51 Drop of 50 - 8 oz

Weight active material 3.383
Tamps 39
Caliper 270
2.38 grsm

Tube 52 5" Drop weight on
lamp 16 oz

Weight active material 3.900
Caliper 275
Temp 38
Reg tube
2.75 grism

Tube 53 Dup of 52 16 oz

Wt active material 3.780
Caliper 274
Temp 39
2.66 grism

Tube 54 5" Drop weight on
Rod — 32 — g

Wright active material 4.415
Calliper 277
Tamps 41
Reg Tube
3.11 grsm

Tube 55 Dup of 54 32 g

Wt active material, 4500
Calliper 277
Tamps 41
Reg tube
3.17 grsm

Nat Corning 3 RB 5" 3 rop

Tubs 56 - to determine amount of
No 3 Caramel -
6000 green
1500 NaCo 72/18 -
1250 - No 3 Caramel -
Trimmed and dry Mg not dried -

Weight active material 4,710
Calliper 277
Temps 38

3,229 green

Tube 57 Dup of 56 Cut

6000 green
1500 flake N.C thru 20
1500 - No 3 Caramel
only little clay at end of mixing

Wt active matter 4.975
Temp 41
Caliper 276
Rep tube -

3.31 green

Notice 56 57 + 58 flake break up least in 58 more in 57 + broken up finest in 56 —

Tube 58 Dup of 56 — Except

1800. No 3 Carmel.

Very sticky - mixes ok at end tix flow + not dry though there is no balls. would be easy —

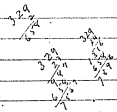
Wt axline Material 5.110

Jumps 41

Caliper 277

Reg tube —

329 gram —



Put in balls 2 pm July 5
not cor

Tube 59 Thro 80 mesh fence left in —

6000 Green works ok — no balls
1500 Flake Mn Co thro 20
2000 No 3 Caramel — tried the big lot of very thick Caramel too dry.
3 lb wt 5" Drop —
50 Jamps or as near that as possible,

Wt active material 5.390
Jamps 50
Caliper — 277

3.40 green

Pub-bottle July 5 - 2 pm
not cor

60= Thro 80 mesh + all fines in
·18000 green
4500 Flake NiCo this 2a
6000 No 3 Caramel. very few balls,
may be lots fine ones but none on 20 mesh
seems to be ok + well covered, good sticky
green -
Make 50 lamps as near as possible
3 lb wet 5" drop -
Wright active material 0.365
Caliper 276
Tamps, 49

3.38 green

61 Dup of 60-

Weight active material 5.415
Calliper 276
Tamps 51

3.41 gram

62 Dup of 60

Weight active material 5.405
Calliper 277
Tamps. 52

3.41 gram

Pud – 6 – 11 Pb July 5 · 2.30 pm

63. not cor

18000 green thro 80 mesh all fines in
4500 flake Ni Co thro 20
4500 No 3 Caramel works 6 lbs too
Try on acct of more fines – wants 5400 to 6000
Make 50 Tamps as near as possible
with 3 lb 5" drop –

Weight active material 5.275
Callipers 276
Tamps. 48

J.S. Green

64 Dup of 63

Wt active material 5.280
Calliper 277
Jumps 48

351 grams

65 Dup of 63

Wt active material 5.415
Calliper 277
Jumps. 51

Small crack on one end

356 grams

Prd — bottle July 5 3 pm

66 — nat cor

18000 green all thro 80 mesh all fines

4500 NiCo flake thro 20.

6000 No 3 Enamel —

To have 50 Tamps as near as possible

and WEIGHT $2\frac{1}{2}$ lbs 5" Drop

Be sure have weight right + Exactly

$2\frac{1}{2}$ lbs — Cover good

Wt active material 5.495

Calliper 277

Tamps 53

Reg tube NiCo plated + tube welded

3:46

67 Dupe of 66

Weight active material 5.410
Caliper 277
Temper 51
Reg tubs. In Copeland – Tubs welded

3.141 gress

631 666

68 - Dup of 66 -

Weight active material 5.500
Caliper .277
Tamps 51

3.47 gram

put in bottle July 5 7 pm

69 =

18000 green thro 80 mesh with all fines
4500 Flake Ni Co thro 20 mesh
6000 No 3 Caramel

To have 50 Tamps as near as possible
to use TWO POUND weight 5" fall

Wt active material 5.265
Calliper 276
Tamps 51
Reg Ni Co plate) Tube, used) Tube wt)

5.32 green

70 Dup of 69~

Weight actuus material 5.240
Calliper 276
Tamps 54

3.30 green

7.1 Dup of 69-

Weight active material 5.250
Caliper 276
Temps - 53

3:30 gram

72.

18000 grain thro 80 fines in
4500 " Pure Nickel flake thro 20
6000 No 3 Enamel.
Use: 3 lbs pressure 5" Drop
50 Tamps as near as possible

Weight of active material 5,805
Calliper 277
Tamps - 51
Reg Tubes,

3.66 grain

73 Dup of 72-

Weight active material, 5.770
Caliper 277
Tamps. 51

3.64 grsm

74 Dup of 72

Weight active material 5.650
Caliper 277
Tamp 48

3.56 gms

75 Tubes -

18000 green thro 80 with all the fines
4500 Fleuke M.Co 72/24 Thro 20
8000 No 3 Carnauba wks OK -
50 Tamps
3 lb wt 5" drop - Reg tube.

Wright active material 6 068
Cadlupen 277
Tamps. 53

3,58

76 Dup of 75

Weight active material, 5.990
Calliper 277
Tamps 56
small crack on one end

3.48

77 Dup of 75

Weight active material 6.035
Caliper - 277
Temp - 56

3.5 g/cm

78 =

19000 green Thro 80 all fines in
4500 M. Co flake at 1st Stick to green
1500 " Mixed in afterwards
8000 of No 2 Caramel. I found
for some unknown reason 6000
Caramel thinner than No 3 was
too dry + 6000 thicker than No 3
too dry so took 8000 + this OK
but it was not very sticky like
usual but flake seemed about
perfect (?) 4500 flake & 6000 flake
didnt break up like it does
when more sticky & there was no
trouble with balls. –
Use 50 lamps. 3 lb 5" drop –

Weight actual material 6.570
Cackes 277
Lamps, 50

Small crack in one end.

3:69 passed

79 - Dup of 78

Weight active material 5.676
Collimator 277
Stamps 49

This time left on our hills longer than 78

3.14 grams

80 Dup of 78

Weight active material 6.5525
Caliper 277
Weight, 54

3.167 grsew

81 -

18000 Thru 80 funnel in -
6000 M Co flake thru 20
8000 glucose

The glucose was too thin mixed it with green it wet it perfect but had no sticky properties I mixed top and it - Dried it for 20 minutes when mix got more sticky - then put in flake - notice in micro that the particles are all separated + stick to flake at points but are not covered all over like when you make more sticky condition also notice flake not broken up as is usual with very sticky mix - Think this will be ok if particle green don't come off flake + aggregate The glucose should be made so it is slightly sticky at first then in act breaking it gets to right consistency the it would think be desirable not to have mix so sticky that it balls or break flake up + yet hold particles to flake -

If glucose thin be made to work to ones + has no particles in it like Caramel

of course a large quantity water
Evap from the 8000 so it will be
hard to calculate the green
Used 50 Tamps 3 lb 5" drop
Regulated –
Weight active material 6.550
Calliper 277
Tamps 54
Small crack in one corner

3.67 grams

There is a greenish cast to my
because particles not covered
all over but it looks fairly
well – it would be practical –
if it would work but its doubtful
of working. Glucose evidently is
not as sticky as Molasses for
same bulk or it goes on the
wicks, but think it hard
the sticky properties as it
works in oil & gas which would
show that it doesn't go in
to any great extent,

very sticky stuck to the end of plunger

82 Dup of 81

Wt active Material 6.415
Caliper 277
Temp 51

3.162 grams

83. Dup of 81

Weight inclusive material, 6.555
~~[illegible]~~ Caliper 276
Jumps - 53

3.67 grain

18000 green 1 mo 80 times in -
6000 flake MCo 70/30 1 mo 20
6000 Glucose regular stuff which
will not pour in a thick rope out of bottle
to this added about 1/2 bulk of water &
heated it slightly & stirred till water
mixed when cold its about like
honey - rather ropy - it mixes ok but
no stick properties had to spread
out a dry & in doing so got it
a little sticky but some of the
particles exposed simply dried
completely hence which put flake
in those wanted not stick flake
& constantly screened to bottom
Today will have to look out in
filling but guess it will go
shy of grease anyway
50 lumps - 3 lb 5" drop

Weight a Material 6.175
Cadeyn 2.76
Lumps 49

3.164 green

85 = Dup of 84

Weight actual M. 6.225
Calcium 276
Tamps 48

3.73 grm

86 Dup of 84

Wright accumulated 6.185
Calkins 275
Jumps — 48

3.71 [illegible]

87

18000

6000 McCoflake 70/30 Run 20

8000 glycerin same as used in 84

Not sticky didn't want to dry it much, mixed ok but has green cast in inner 2 or 3 pinholes separate but only mixed well flake not covered the sticky prevents curing thru 4-degree opening –

50 Tamps 3 lb 5" Drop

Weight all – 6.590

Caliper 277

Tamps 48

To darn sticky had to clean plunger every 4 tamps

3.60 gram

88 Dup of 87

Wright AM 6.200
Cadeyn 276
Tamayo 49

3.148 green

89 - Dup of 87

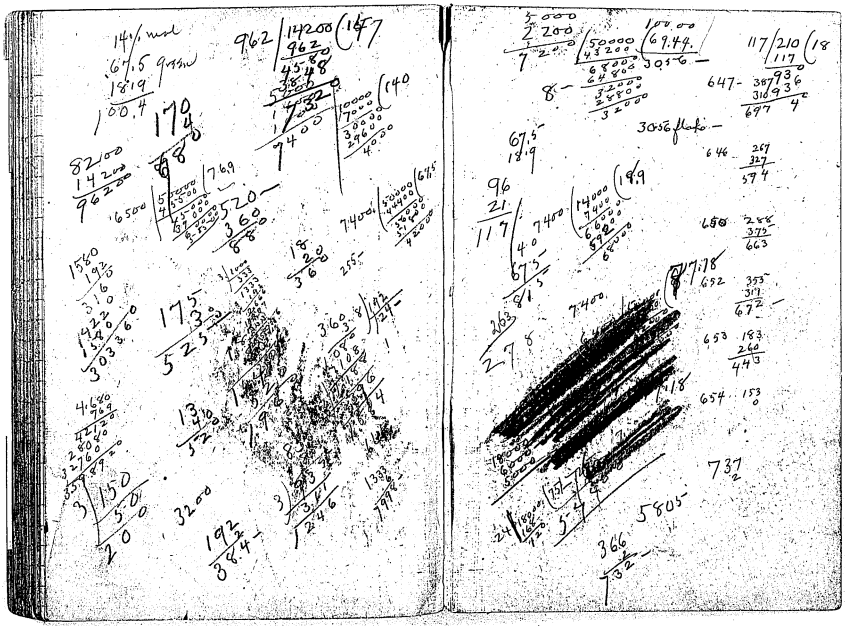
Actuno Walnut 6.725
Cuccipu 276
Tempo — 48

3.77 grm

3 | 950
327

1500
192
260
170
130
249

250
62
25
3

3004 | 2468 | 2468
2468
1404
1468
2468
3001

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